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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

SCHECHTER, ANDREW M

ART UNIT PAPER NUMBER

2871

DATE MAILED: 11/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/603,990	NAM ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Andrew Schechter	2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 06 September 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 10, 11, 19 and 20 is/are allowed.
- 6) ☒ Claim(s) 1-5, 7-9, 12-15, 17, 18 and 21 is/are rejected.
- 7) ☒ Claim(s) 6 and 16 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 June 2003 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☒ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Specification***

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

### ***Response to Arguments***

2. Applicant's arguments have been fully considered and are persuasive. The rejections in the previous office action have been withdrawn.

### ***Election/Restrictions***

3. **The restriction requirement as set forth in the Office action mailed on 9 August 2004 has been reconsidered and is hereby withdrawn.** Claims 10, 11, and 19-21 are rejoined and considered fully on the merits.

In view of the above noted withdrawal of the restriction requirement, applicant is advised that if any claim presented in a continuation or divisional application is anticipated by, or includes all the limitations of, a claim that is allowable in the present application, such claim may be subject to provisional statutory and/or nonstatutory double patenting rejections over the claims of the instant application.

Once a restriction requirement is withdrawn, the provisions of 35 U.S.C. 121 are no longer applicable. See *In re Ziegler*, 443 F.2d 1211, 1215, 170 USPQ 129, 131-32 (CCPA 1971). See also MPEP § 804.01.

### ***Claim Objections***

4. Claim 10 is objected to because of the following informalities: the phrase "are separated by a first cell gap, and a second cell gap in the reflective portion, and the first cell gap is twice greater than the second cell gap in the transmissive portion" is garbled. It clearly is meant to read "are separated by a first cell gap in the transmissive portion, and a second cell gap in the reflective portion, and the first cell gap is twice greater than the second cell gap". Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1 and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by *Kubo et al.*, U.S. Patent No. 6,195,140.

*Kubo* discloses [see Figs. 43 and 44, for instance] a transfective liquid crystal display device comprising a substrate having a reflective portion [right and left] and a transmissive portion [center], a gate line [202 attached to gate electrode 210] on the

substrate, a data line [203] crossing the gate line and defining a pixel region, a thin film transistor [204] connected to the gate line and the data line, a plurality of uneven patterns consisting of a first organic material layer [253a,b, made of the organic material layer 252] within the reflective portion, the uneven patterns partially covering the substrate, a second organic material layer [254] on the first organic material layer, the second organic material layer having an open portion at the transmissive portion, and a reflective layer [242] on the second organic material layer having a transmissive hole at the open portion. Claim 1 is therefore anticipated.

The TFT comprises a gate electrode [210], an active layer [212], and source and drain electrodes [249, 205], so claim 7 is also anticipated.

7. Claims 1 and 2 are rejected under 35 U.S.C. 102(e) as being anticipated by *Fujino*, U.S. Patent No. 6,809,785.

*Fujino* discloses [see Fig. 12, for instance] a transflective liquid crystal display device comprising a substrate [1] having a reflective portion [R] and a transmissive portion [T], a gate line [attached to gate electrode G] on the substrate, a data line [S<sub>1</sub>] crossing the gate line and defining a pixel region, a thin film transistor [Fig. 12a] connected to the gate line and the data line, a plurality of uneven patterns consisting of a first organic material layer [7] within the reflective portion, the uneven patterns partially covering the substrate, a second organic material layer [8] on the first organic material layer, the second organic material layer having an open portion at the transmissive portion, and a reflective layer [10] on the second organic material layer having a transmissive hole at the open portion. Claim 1 is therefore anticipated.

The first and second organic material layers are formed from a photosensitive material [col. 2, lines 1-10], so claim 2 is also anticipated.

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 2, 3, 12, and 123 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Kubo et al.*, U.S. Patent No. 6,195,140 as applied above.

In the embodiment discussed above, *Kubo* discloses that the first organic film [253] is formed from a photosensitive material, but does not explicitly state that the second organic layer [254] is also formed from the photosensitive material or that the material comprises a photo-acrylic resin. However, the second organic layer [254] is clearly patterned [see Fig. 44E], and it would have been obvious to one of ordinary skill in the art at the time of the invention to do so using a photosensitive material, motivated by the use of photolithography to pattern being reliable, precise, and well-understood. Moreover, *Kubo* discloses repeatedly using an acrylic resin for such layers throughout the disclosure [though silent on the material in this particular embodiment], and teaches that such a photo-acrylic resin is beneficial because it allows very thin layers to be formed easily by the spin-on method [col. 39, lines 7-11, for instance]. It would

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therefore have been obvious to one of ordinary skill in the art at the time of the invention to use such a photo-acrylic resin for the first and second organic layers in the above embodiment in *Kubo*. Claims 2 and 3 are therefore unpatentable.

*Kubo* discloses the method of forming such a device as recited in claim 12, including performing an exposure and development process on the photosensitive layers [which is an inherent part of the photolithography process], so claim 12 is also unpatentable. As discussed above, forming the first and second photosensitive material layers of a photo-acrylic resin would have been obvious to one of ordinary skill in the art at the time of the invention, so claim 13 is also unpatentable.

10. Claims 4, 5, 14, 15, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Kubo et al.*, U.S. Patent No. 6,195,140 as applied to claims 1 and 12 above, in view of *You*, U.S. Patent No. 7,023,508.

*Kubo* does not disclose an inorganic material layer covering the gate line, the data line, and the thin film transistor. *You* discloses an analogous device [see Fig. 3, for instance], which has an inorganic material layer [116] made of silicon nitride, covering the gate line, the data line, and the thin film transistor. It would have been obvious to one of ordinary skill in the art at the time of the invention to use such *You's* inorganic silicon nitride layer in the device of *Kubo*, motivated by *You's* teaching that this maintains the reliability of the transistor and pads and enhances the strength of COG bonding [col. 9, lines 1-8]. Claims 4, 5, 14, and 15 are therefore unpatentable.

The additional limitation of claim 21 which has not already been addressed is that the uneven patterns cover portions of the inorganic material layer within the reflective

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portion excluding a peripheral portion of the pixel region. As can be seen from *Kubo's* figures, the uneven portions do not extend to the edge of the pixel region, so there is a peripheral portion excluded from the uneven patterns, as recited. Claim 21 is therefore unpatentable.

11. Claims 8, 9, 17, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Kubo et al.*, U.S. Patent No. 6,195,140 as applied above, in view of official notice.

*Kubo* does not explicitly disclose gate pads, data pads, or a capacitor electrode overlapping the gate line. The examiner takes official notice that these features are well-known and conventional in the art. It would have been obvious to one of ordinary skill in the art at the time of the invention to include them in the device of *Kubo*, motivated by the desire to make electrical contact to the gate and data lines, and to provide a reliable storage capacitance to improve the display quality. Claims 8 and 17 are therefore unpatentable.

Similarly, to make electrical contact to these, it is necessary to have drain contact holes, capacitor contact holes, gate pad contact holes, and data pad contact holes as recited; the examiner takes official notice that such are well-known and would have been obvious to one of ordinary skill in the art at the time of the invention, for the purpose of making electrical contact to the relevant electrodes through the second organic material layer. Claims 9 and 18 are therefore unpatentable.



***Allowable Subject Matter***

12. Claims 6 and 16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

13. Claims 10, 11, 19, and 20 are allowed.

14. The following is a statement of reasons for the indication of allowable subject matter:

The prior art does not disclose the device of claim 6, in particular the additional limitation that a pixel electrode is formed on the reflective layer (as opposed to the reflective layer being the pixel electrode). Claim 6 would therefore be allowable if rewritten appropriately. Similarly for the analogous method claim 16.

Similarly, the prior art does not disclose the device of claim 10, in particular the limitation of a pixel electrode on the reflective layer. Claim 10 is therefore allowed, as is its dependent claim 11.

Similarly, the prior art does not disclose the method of claim 19, having the same limitation. Claim 19 is therefore allowed, as is its dependent claim 20.


***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew Schechter whose telephone number is (571) 272-2302. The examiner can normally be reached on Monday - Friday, 9:00 - 5:30.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dave Nelms can be reached at (571) 272-1787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Andrew Schechter  
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3 November 2006